

Overview of Digital Aviation Services in the Aviation Weather Testbed

Steve Lack
Aviation Weather Center



Aviation Weather Testbed Winter Experiment
5 April 2016



Acknowledgements



- Cammye Sims-Uskievich at NWS ASWSB
- Tracy Hansen, Tom LeFebvre, Sarah Pontius at GSD
- Ben Schwedler and Austin Cross at AWC/Aviation Weather Testbed
- Nate Eckstein Arctic Testbed/MWO AAWU
- John Bravender at MWO HFO
- Kim Runk at OPG
- Starr McGettigan at FAA AWDE
- Jeff Craven at CRH





What are Digital Aviation Services?

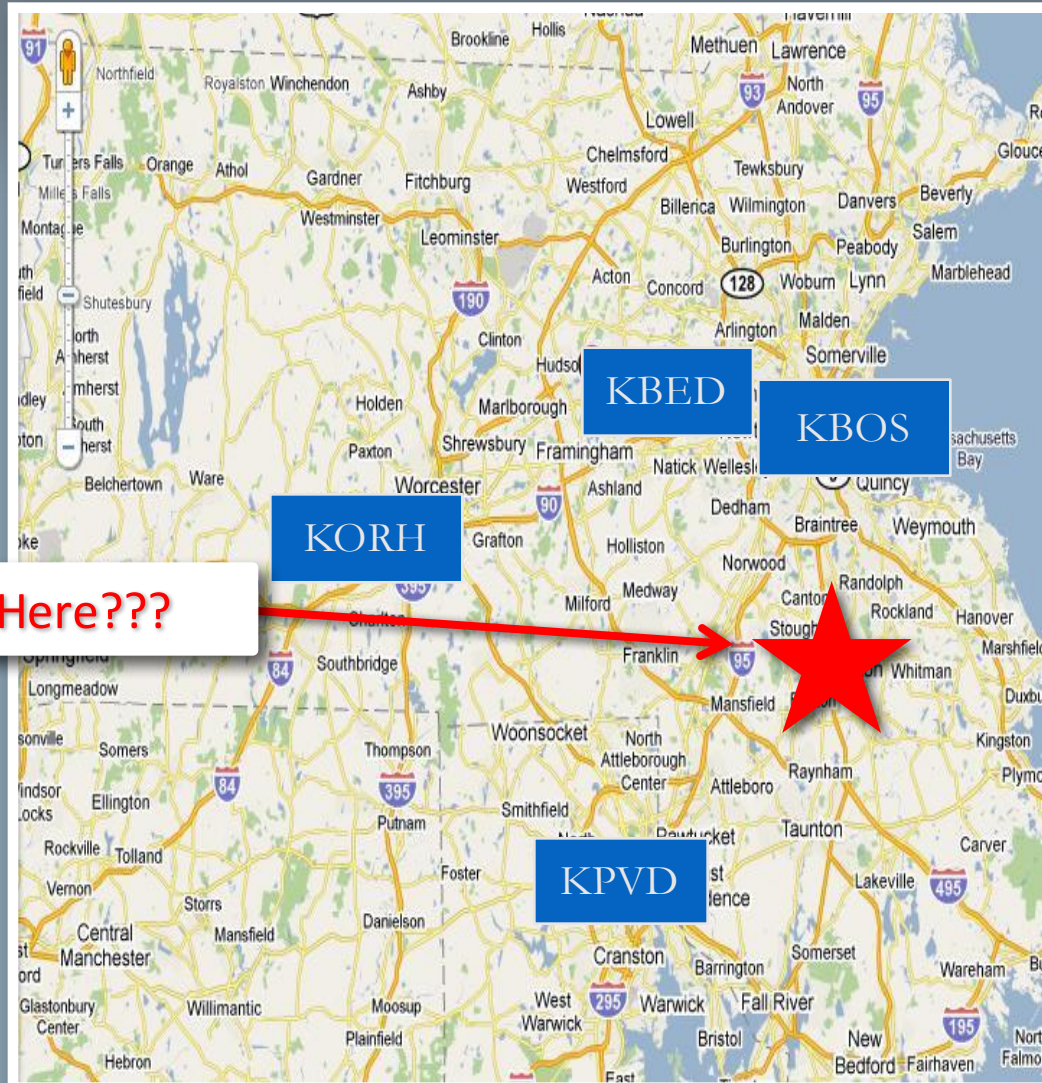


- Digital Aviation Services (DAS) are part of the Enhanced Digital Services Roadmap
 - Aviation accounts for 5% of the GDP → safety and efficiency of flight is a priority
- Increase the grids produced to include aviation variables
 - Cloud bases and tops, visibility, low-level wind shear, etc
- Aviation variables become part of the NDFD suite
 - TAFs, area forecasts, flight path tools are all generated off of a common operating picture





Change in Thinking (Point to Grid)



What About Here???





Increased C&V Momentum



- The AWT brings together WFOs, Testbeds and Proving Grounds, and Regional and National Centers to collaboratively move forward in the DAS paradigm
- Main goals:
 1. **Impact-based Decision Support Services** → Meteorologist editing short-term cloud and visibility grids in impactful scenarios
 2. **Common Operating Picture** → Provide national level guidance or techniques for creating a National Blend solution to drive a consistent end product for C&V
 3. **Common Aviation Production Platforms** → create forecasts using similar toolsets/procedures across MWOs down to local WFOs (i.e. AWIPS)





GFE grids in Central Region (MT in WR)

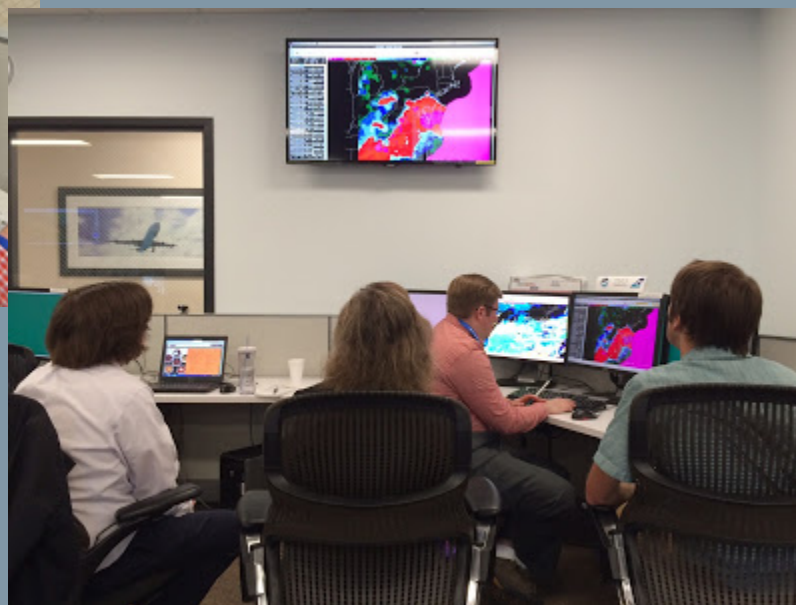




DAS in the 2016 AWT Winter Experiment



AWT WE2016 participants testing new guidance as a first guess in creating cloud and visibility grids via GFE

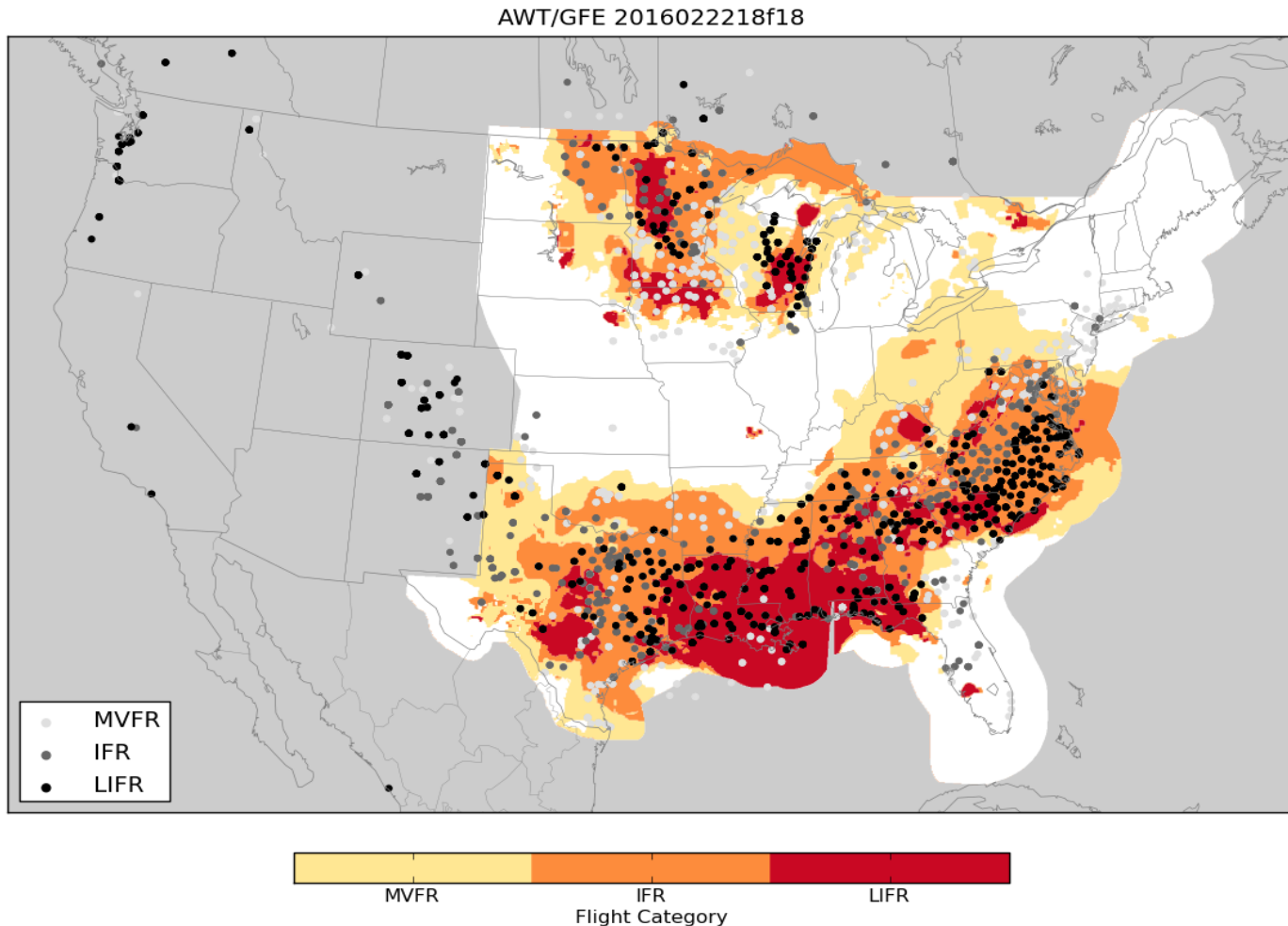


Results were positive that AWC forecasters could produce a CONUS level cloud and visibility product to the WFOs for local editing all within the GFE environment



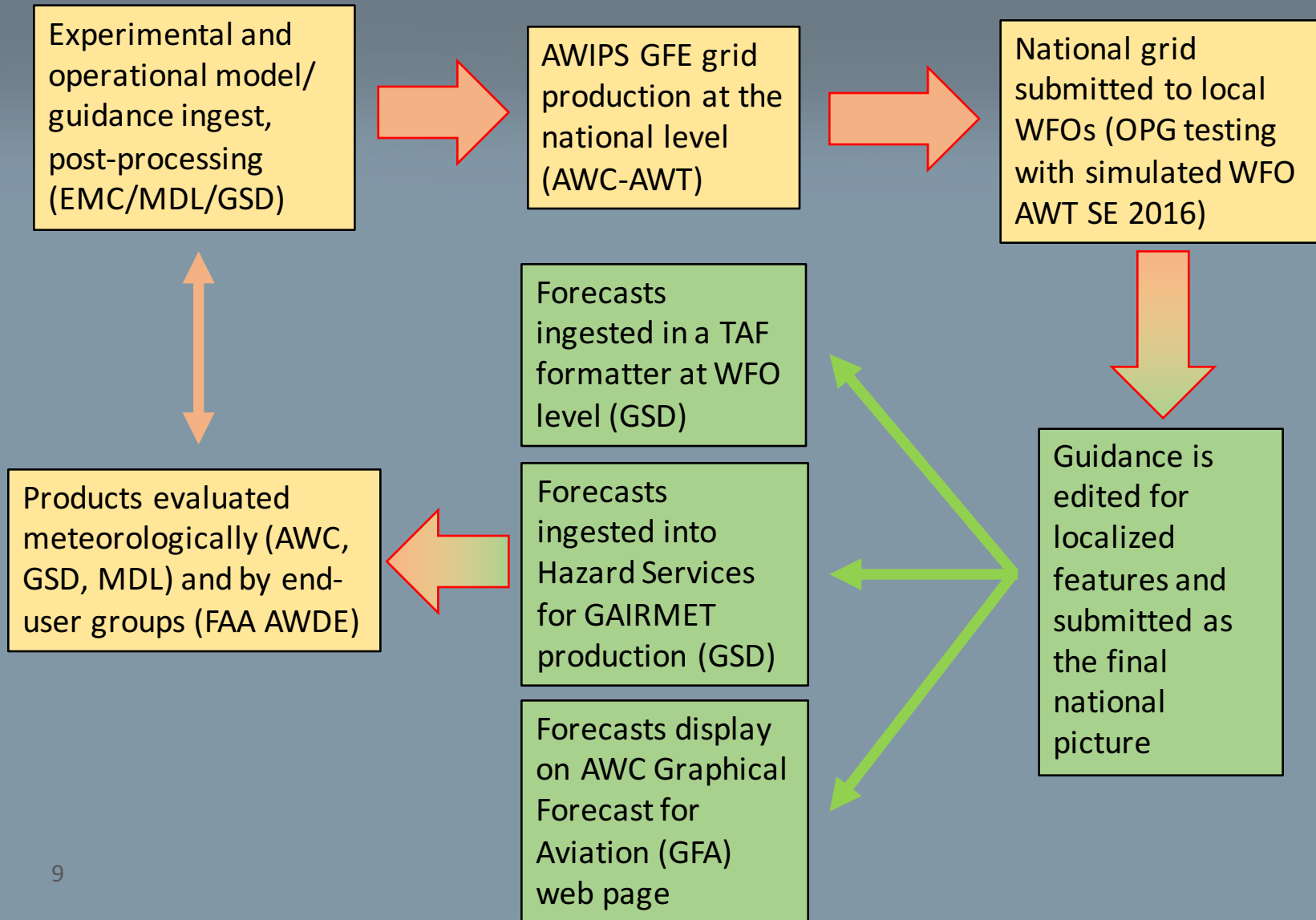


AWC National Guidance for DAS





DAS C&V R2O and O2R





Probabilistic Aviation Grids



- Goal: Provide context-based probabilistic information
 - Display of information most suitable for end-users (pilots, controllers, planners)
- Leverage partnership with the FAA Aviation Weather Demonstration and Evaluation (AWDE) group
 - Deterministic and Probabilistic output from AWT Winter and Summer Experiments are displayed and evaluated real-time in Atlantic City



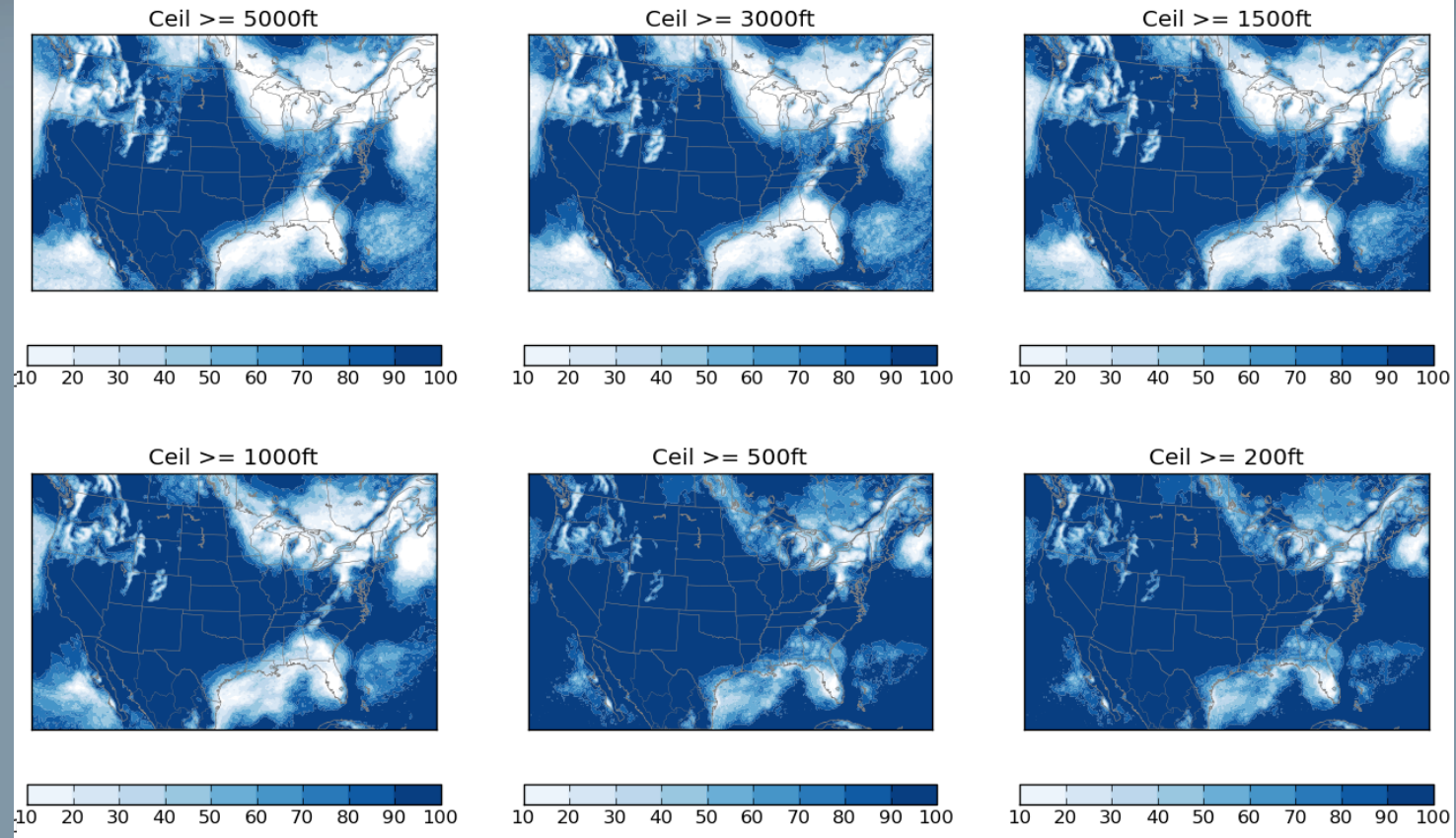


Probabilistic Ceiling Information



Clear Air Turbulence Perspective

Probability of Occurrence 2016031509f27





Ongoing Research in the AWT



- Assessment of model output for national cloud and visibility guidance from EMC/GSD/MDL
 - Input to optimal blends for first guess fields to NBM
- Development of AWIPS capabilities between MWOs for common aviation production platforms
 - Investigate C&V smart tools
 - Hazard services development between GSD/AWC/AAWU/HFO/Arctic Testbed
- Collaboration with OPG on procedures for two-way interaction between national centers and local WFOs for aviation grids
- Continued evaluation efforts with FAA AWDE





Summary of Current and Future Efforts



- Current
 - Evaluate new experimental model guidance for clouds and visibility to create an automated C&V first guess field 'blend'
 - Work with OPG on simulating the 2-way collaboration with simulated WFOs- Meteorologist-over-the-Loop (AWT Summer Experiment 2016)
 - Address software challenges moving forward with AWIPS at AWC
- Beyond
 - Move towards potential MITL implementation at AWC for Clouds and Visibility
 - Investigate other national guidance fields AWC could produce and benefit from 2-way interaction for consistency (e.g. low-level wind shear)
 - Utilize resultant aviation NDFD grids for the Graphical Forecast for Aviation webpage
 - Continue development of AWC products and services via AWIPS
 - Increase collaboration for additional aviation hazards (SPC for aviation thunder products?)

